

Kenwood Valley Groundwater Basin

Groundwater Basin Number: 2-19

County: Sonoma

Surface Area: 5,140 acres (8 square miles)

Basin Boundaries and Hydrology

Kenwood Valley occupies a northwest-trending structural depression in the southern part of the Coast Ranges of northern California, which divides the Mayacmas Mountains on the east and the Sonoma Mountains on the west. This valley is located east of the Santa Rosa Valley and the City of Santa Rosa. This valley is approximately 7 miles in length and varies in width from less than one mile to about 2 miles at its widest point in the middle of the basin. The Kenwood Valley Groundwater Basin is defined by the areal extent of unconsolidated to semiconsolidated geologic materials that are bounded by bedrock of the Sonoma Volcanics.

The Kenwood Valley Groundwater Basin is bounded on its northwest side by the Rincon Valley Subbasin of the Santa Rosa Valley Groundwater Basin and on the southeast side by the Sonoma Valley Subbasin of the Napa-Sonoma Valley Groundwater Basin.

There is a drainage divide located within Kenwood Valley which causes the northern half of the valley to drain to the northwest into Santa Rosa Creek and the southern half to drain to the southeast into Sonoma Creek which ultimately drains into Sonoma Valley. Annual precipitation in Kenwood Valley ranges from about 36 to 44 inches.

Hydrogeologic Information

Water Bearing Formations

The primary water-bearing units in Kenwood Valley are Alluvium and the Glen Ellen Formation. The basin is underlain by bedrock of the Sonoma Volcanics which, in general, is considered to be non-water bearing but is tapped for domestic uses.

Alluvium. Alluvial deposits are present over a significant proportion of Kenwood Valley. These deposits consist of poorly sorted coarse sand and gravel, and moderately sorted fine sand, silt, and clay, and have a specific yield of 8 to 17 percent (DWR 1982). The older alluvial deposits are Late Pleistocene in age, are sometimes dissected, and have a maximum exposed thickness of 100 feet in the Santa Rosa Valley (Cardwell

1958). The younger alluvium is a thin veneer over the old, ranging from 30 to 100 feet thick, and is Late Pleistocene to Holocene in age. The deposits are not perennially saturated, have low permeability, and are generally unconfined or slightly confined (Cardwell 1958).

Glen Ellen Formation. The Glen Ellen Formation provides the major water source in the Rincon Valley sub basin, and is connected to the principal groundwater body in the Santa Rosa Valley (Cardwell 1958). The Glen Ellen consists of partially cemented beds and lenses of poorly sorted gravel, sand, silt, and clay that vary widely in thickness and extent (Cardwell 1958; DWR 1982). This continental deposit is Pliocene (?) to Pleistocene age, and was deposited in structural troughs so it varies in thickness from 3,000 feet to less than 1,500 feet on the west side of the Santa Rosa Valley (Cardwell 1958). Average specific yield for the Glen Ellen Formation is 3 to 7 percent (DWR 1982). This formation is tapped for domestic use (Cardwell 1958).

Groundwater Level Trends

Review of hydrographs from wells within Kenwood Valley indicates water levels have remained relatively stable during the period of 1990 to 2001 (DWR unpublished data).

Groundwater Storage

Groundwater Storage Capacity. An estimate of the gross groundwater storage capacity for Kenwood Valley of 40,000 af was obtained by the USGS using an area of 3,300 acres, an average specific yield of 5.5 to 6.5 percent, and an estimated 190 feet of water-bearing materials (Cardwell 1958). In a separate study, an estimate of the usable storage capacity for the Kenwood-Rincon Valley area of 45,000 af was obtained by DWR using an area of 4,300 acres, a specific yield of 5.5 percent, and an alluvial aquifer thickness of 190 feet (DWR 1965).

Groundwater in Storage. There are no published data available that provide an estimate of the amount of groundwater in storage.

Groundwater Quality

Characterization. There are no published water quality data available for Kenwood Valley, although the adjacent Rincon Valley subbasin is generally characterized by a calcium-bicarbonate water type (DWR 1975). Based on analyses of five water supply wells in the subbasin, TDS ranges from 172 to 280 mg/L and averages about 223 mg/L.

Impairments. No water quality impairments were noted.

Groundwater Budget (Type C)

There is not enough data available in order to estimate a groundwater budget.

Well Production Characteristics

Well Yields: (gal/min)	Municipal/Irrigation: No data available.
Production Depths: (ft)	Total depths of completed wells Municipal/Domestic: Range: 198 to 703 Average: 356 (based on 13 well completion reports) Irrigation: Range: 247 to 497 Average: 372 (Based on two well completion reports)

Active Monitoring Data

Agency	Parameter	Number of Wells /Measurement Frequency
DWR	Groundwater levels	3 wells / semi-annually
DWR	Mineral, nutrient, & minor element.	2 wells / every three years
Department of Health Services	Coliform, nitrates, mineral, organic chemicals, and radiological.	13 wells as required in Title 22, Calif. Code of Regulations

Basin Management

Groundwater Management:	No groundwater management plans identified.
Water Agencies: Public/Private	Sonoma County Water Agency

References Cited

Cardwell, G.T., 1958. Geology and Ground Water in the Santa Rosa and Petaluma Valley Areas, Sonoma County, California. USGS Water Supply Paper 1427.

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California Department of Water Resources (DWR). 1965. Water Resources and Future Water Requirements. North Coast Hydrographic Region. Volume 1: Southern Region. DWR Bulletin 142-1, April.

California Department of Water Resources (DWR). 1975. Evaluation of Ground Water Resources: Sonoma County. Volume 1: Geologic and Hydrologic Data. Bulletin 118-4, December.

California Department of Water Resources (DWR). 1982. Evaluation of Ground Water Resources - Sonoma County. Volume 2: Santa Rosa Plain. DWR Bulletin 118-4, September.

Additional References

Harding-Lawson Associates 1978. Evaluation of Alternatives for Recharge of the Santa Rosa Plain Ground-Water Basin. March 1978.